JAN 20 1938

CARNEGIE MAGAZINE

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VOLUME XI PITTSBURGH, PA., JANUARY 1938 NUMBER 8

MONGOLIAN PRINCE AND HIS FOLLOWERS

DRAWING BY ALEXANDRE IACOVLEFF

(*See Page* 227)

THE CARNEGIE MAGAZINE

PUBLISHED MONTHLY, EXCEPTING JULY AND AUGUST, IN THE INTEREST OF THE CARNEGIE INSTITUTE, THE CARNEGIE INSTITUTE OF TECHNOLOGY, AND THE CARNEGIE LIBRARY, PITTSBURGH, PA. SUBSCRIPTION PRICE ONE DOLLAR A YEAR; SINGLE COPIES TEN CENTS. ON SALE AT INSTITUTE POST OFFICE, JONES BOOK SHOP, AND THE BOOK DEPARTMENTS OF KAUFMANN'S AND THE JOSEPH HORNE COMPANY.

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VOLUME XI — NUMBER 8

JANUARY 1938

The poet's eye, in a fine frenzy rolling,
Doth glance from heaven to earth, from earth to heaven;
And as imagination bodies forth
The forms of things unknown, the poet's pen
Turns them to shapes, and gives to airy nothing
A local habitation and a name.

—A MIDSUMMER NIGHT'S DREAM

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MARSHALL BIDWELL, Organist

The Carnegie Institute, in the broadest sense, holds its possessions in trust for mankind and for the constant welfare and happiness of the race. Anyone, therefore, who by a gift of beautiful works of art, or objects of scientific value, or a donation to its financial resources, aids in the growth of these collections and the extension of its service is contributing substantially to the glorious mission of the Institute.

The Carnegie Institute will be the final home of every worthy collection of pictures and museum objects when the men and women who have chosen them wish to have the world enjoy them.

—ANDREW CARNEGIE

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A CALL FROM QUERCUS

DEAR CARNEGIE:

"Among pieces found by chance that moved and quickened us, 'The Arts as Motive Power,' a speech by Maxwell Anderson at the Carnegie Institute, reprinted in the New York Times October 17. If Carnegie Institute issued it in preservable form, wish they'd send us a copy." This plea is from the Trade Winds page "By P. E. G. Quercus" of the Saturday Review of Literature, issue of December 25.

No doubt this is the hundredth reminder to reach you; but I go on the theory that one hundred are better than a possible one.

—L. M. BEATTIE
[Associate Professor, English, Carnegie Tech]

MAXWELL ANDERSON AGAIN

BIRMINGHAM, ALABAMA

DEAR CARNEGIE:

I've read the November issue of the Magazine from cover to cover with a great deal of enthusiasm, and I think from the contents of Maxwell Anderson's talk that he was the very finest choice for the Founder's Day celebration. He argues that an artist should be known by his work, and not try to reduce his message to a bald statement; but what he said that day will never do him any harm and the whole philosophy shows his breadth of view and his consecration to his particular branch of art. . . .

—MARGARET H. HUGHES

CHARLES W. HAWTHORNE'S PUPILS

NEW YORK CITY

DEAR CARNEGIE:

A book of instruction in painting, taken from notes of Mr. Hawthorne's criticisms at the Cape Cod School of Art, is being published by Isaac Pitman and I should appreciate it if any of his former pupils who have studies which he painted before the class would communicate with me as soon as possible at 280 West 4th Street, New York City; we are looking for a number of these to use as illustrations in the book.

—MRS. CHARLES W. HAWTHORNE

JOB'S TURKEY

DEAR CARNEGIE:

In your Editor's Window for December (page 220) you say that a member of Congress may be "as poor as Job's turkey" provided that he is mentally equipped to represent the people. How poor was Job's turkey?

—JOHN SOMERS

Tradition says he was so poor that he had to lean against the fence to gobble.

INSTRUCTIVE

RIDGWAY, PENNSYLVANIA

DEAR CARNEGIE:

. . . I have enjoyed the Magazine very much as being instructive, interesting, and stimulating.

—R. T. GARRISON

THE ART OF ALEXANDRE IACOVLEFF

REMARKABLE creative ability, an amazing productive power, great technical skill, incredible versatility as to style and the use of artistic medium, superb draftsmanship, and a cosmopolitan understanding, sympathy, and outlook are revealed in the exhibition of paintings, drawings, and water colors by Alexandre Iacovleff, now on view at the Carnegie Institute. In the exhibition there are fifty-six paintings, thirty-four drawings, and fifteen water colors, practically all of which have been done within the past six years.

AFGHANS (Oil Painting)

Pittsburghers have been familiar in a limited way with the paintings of Iacovleff, for he exhibited in the 1924, 1925, 1926, 1927, and 1934 Internationals, but this is their first opportunity to see his art at full length. There will be many who will recall the painting "Portraits, Port-Cros, 1921," with which he made his initial appearance in a Carnegie International. It was a large outdoor painting with five figures, assembled on the Mediterranean shore with a town far in the background. It was unique in composition, daring in execution, and the draftsmanship was, to say the least, exciting. It gave more than a promise of a new figure in the art world, if not a new master. Many were pleased that this painting was purchased by Edgar Kaufmann, and found a home in the Kaufmann Department Store of Pittsburgh.

Alexandre Iacovleff was born in St. Petersburg in 1887. He studied at the famous Fine Arts Academy there under Kardovsky. He was naturally a brilliant student, but profited by the rigorous training and discipline of the school that upheld drawing as the probity of art. On his graduation in 1913 he won a travelling fellowship that took him to Italy, then to Spain, where he made an intensive study of El Greco. At the outbreak of the World War, he returned to Russia, but in 1917, on being released from military obligations, he began his long-desired visit to China. There, not satisfied with the usually frequented points of interest, he journeyed to the most remote, out-of-the-way, often dangerous places. That was the beginning of his wanderings, which were later to take him across Africa, to India, and to Persia. In 1919 he settled for a time in Paris, and it was there that his work, as far as America is concerned, was discovered by Robert B. Harshe, who as assistant director of fine arts of the

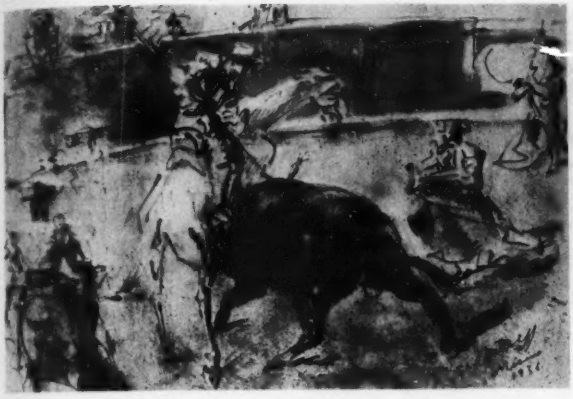
A MANDOLINIST, CAPRI (Oil Painting)

Carnegie Institute, was assembling paintings for the International Exhibition of the next year. Mr. Harshe recognized at once that he had come on the work of an unheard, unsung genius. Later, in 1922, Mr. Harshe, who had become director of the Art Institute of Chicago, with the co-operation and interest of Abram Poole, American artist, gave Iacovleff his first American exhibition. Iacovleff, himself, came to America in 1934 to become director of drawing and painting in the art school of the Museum of Fine Arts in Boston. Recently he returned to Europe, where he divides his time between Paris and his beloved Capri. Undoubtedly, he will soon be on his way again, for there are still worlds for him to conquer with his pencil and his brush, and he will be foreign to no land save his own.

One of the features that comes immediately to mind when considering his paintings, drawings, and water colors is the artist's cosmopolitanism. He is at home in Shanghai, Capri, Mexico, Persia, Afghanistan, Africa, and South Carolina. His esthetic consciousness seems to grasp the essentials of the landscape and the important characteristics of the natives in each habitat. In the large "Afghans," he organizes in a spacious manner into the mountainous background of their land the wandering, warring tribesmen with their horses; in the painting "Mongols," he portrays a lama with his visitors in a hut, showing just enough of the landscape through the open door to give proper setting to the incident; in "Italian Fishermen Playing Cards," he builds up a scene at Capri, which gives the full flavor of the inhabitants in a moment of relaxation as a preparation for high adventure.

Iacovleff's ability as a draftsman is best seen in his drawings, where with a few bold strokes of his pencil or crayon, he outlines a head, an arm, a body, or a piece of drapery. All this great gift may be seen in the drawing "Nude." On the other hand, with a precise line and an exact technique, he portrays the types of different countries as in "An Annamite Princess," "A Lama," "Mongolian Prince and His Followers," "The Fisherman, Capri," and "A Kirghiz Man." While all these draw-

BATHERS, CAPRI (Oil Painting)



THE PICADOR, MEXICO (Water Color)

ings of racial types are esthetically interesting, they also have merit as ethnological studies. Each drawing has a distinction of its own, and no two are pictorially alike in any respect, the similarity being in the fine drawing and composition.

In his paintings, Iacovleff's draftsmanship is shown in "A Mandolinist, Capri," but in most of his other paintings he seems to forsake his technical virtuosity to secure other effects. This is apparent in "Tritoness, Capri," "Bathers, Capri," and "Triton and Nereid, Capri." In these paintings, his interest is in plastic form. He adapts himself to still other technical methods in his flower and still-life paintings. No subject or technical approach is alien to him. His mood is not always serious, for in many of his paintings he displays a sense of humor and lightness. This may be observed in "Spaghetti," "The Singing Cook, Capri," "Conversation, Capri," and "Italian Fishermen Playing Cards, Capri."

In the water colors, Iacovleff deliberately turns from the exact draftsmanship of his drawings to a free, note-making, dashing style. It is indeed difficult to reconcile the artist who made the water color, "Bull Fight, La Corida, Mexico," with the one who did the series of drawings of racial types. Water color may be a new medium for him—most of the examples in the exhibition were done in Mexico in 1936—but he has adapted his technique to his subject and to his medium, and his result has all the movement, spontaneity, and informality that characterizes effective water colors.

In this exhibition the visitor finds himself in the presence of an artist with a great natural endowment, trained in the Hellenic and Latin disciplines, forced by circumstances and temperament to wander over the earth, absorbing and making part of himself all the cultures with which he comes in contact. At times, he paints and draws as an investigator, or as a scholar or scientist, and then the next moment, he is the most sensitive of artists, who has come on a new technique that will be exactly the right one to reveal his vision of the earth and its peoples. Perhaps it is in this artist that the East and the West meet.

The exhibition will continue through February 3.

J. O'C. Jr.

ONE SIDE THERE, LIBERTY!

The totalitarian states have solved the eternal problem of the reconciliation of individual liberty with social security by the suppression of individual liberty.

—Stephen Duggan

FOR US GROWN-UPS

It is naïve to think of education merely in terms of children. Throughout more than two thousand years it has been an important activity of mature persons, and is so today.

—Leon Josiah Richardson

GREAT IDEAS

He is the greatest artist who has embodied, in the sum of his works, the greatest number of the greatest ideas.

—John Ruskin

TECH ALUMNI COME HOME

There is no doubt that Carnegie Tech's annual homecoming was more of an occasion this year than it has been formerly because the alumni are now united in friendliness and interest toward a common project in which they may all share: the raising of an Alumni Fund that will make a worthy contribution to the 1946 Endowment Fund. And this Alumni Fund is bound to gather momentum as improvements take place on the campus, and a greater Carnegie Tech arises to which sons and daughters will be sent with pride. Every class from 1908 to 1937 was represented at the banquet to hear Dr. Doherty's message concerning his policies and program for the institution. With his usual frankness and ability to present his hopes and plans in a logical manner, the President made the alumni feel that they were and should be a source of strength to Tech, now and in the years to come. A part of the speech is reprinted here:

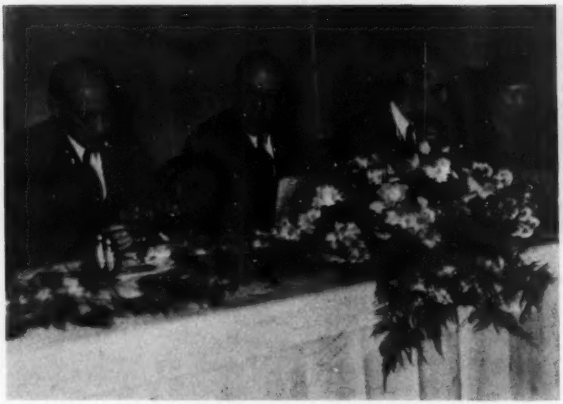
I hope this annual homecoming banquet will become a traditional occasion on which the President not only welcomes the alumni to the campus but reports to them the progress and problems of the institution, and states his hopes. I have said repeatedly that the strength of an educational institution may be gauged by the strength of its alumni. We want to see a strong alumni organization. We want your interest; we want your enthusiasm; we want your help to make this institution the best place to send your sons and daughters and a place in which you and they will have increasing pride. But I know we cannot have your interest, enthusiasm, and help unless you know what is going on—know the policies and programs of the institution. So it is my purpose this evening to give you a report on these matters.

The academic year 1936-37 was characterized by a fresh outlook upon the future of Carnegie Institute of Technology; studied readjustments of educational and administrative procedures; extraordinary increase in applications for admission, especially in evening courses; a most encouraging employment situation; improvements in educational facilities and the physical plant; the accrediting of our engineering courses by the Engineers' Council for Professional Development; recognition of scientific achievement of our faculty by the distinguished national honor society, Sigma Xi, in granting a charter for a local chapter; the further decrease in rate of income on our invested funds; the successful inauguration of the 1946 Endowment campaign; an increase in alumni interest and the institution of the Alumni Fund plan; a solution of the difficult situation in intercollegiate athletics; and the inauguration of a comprehensive, long-range study of campus plan. I propose to report to you regarding such of these matters as I think may fall within your interest and the time available.

May I first refer to educational policy? The fundamental thoughts which inform our educational policy are: (1) clearly defined objectives for all programs and (2) improved quality in all we do. These settle certain other questions of policy and of the budget. They mean that with our present resources, or any immediately in sight, we should stick to the three general fields now represented by our Colleges; eliminate those courses and activities not pointed directly toward the objectives set by the Colleges, improving those that remain, and adding new ones and new facilities required in the reconstructed plan; and restrict enrollment to a point where our facilities are adequate to our purposes. They mean placing our faculty in a position, not merely which they deserve, but which is essential to their clear,

fresh outlook upon the world and upon their work—namely, the position of having reasonably adequate time for rest, recreation, and self-improvement, a feeling of reasonable financial security, freedom of intellectual pursuit, and a voice in the councils of the institution.

I have heard the fear expressed that Carnegie Tech was going to the dogs because it was getting into research, and I wish to allay any fears that may be in your minds on this score. We are into research, and we shall stay in research, but we are not going to the dogs. We shall not become a research institute merely, nor a graduate school merely, nor an undergraduate school merely. These are all essential phases of a whole—a co-ordinated program designed to carry out the purpose, long since settled upon by the trustees, to serve the ever changing industrial and artistic needs of this great community. May I draw an analogy? Our national government has three co-ordinated, essential phases—legislative, executive, and judicial. Let the development of any one of them reach unbalanced relationship to the others, and the purposes of democratic government become endangered; do away with any one of them, and those purposes become defeated. And so with our institution. Undergraduate work, graduate work, and research are all of them essential. They supplement and strengthen each other. They must be kept in balance, or our purposes will be endangered; they must all be retained, or our purposes will be defeated. I can assure you that undergraduate instruction in engineering and science is not handicapped by such research as is being pursued here. On the contrary, I am sure it provides a stimulating atmosphere for both students and instructors, advanced training for students who are competent and seek it, and distinguishes the institution by its service in the advancement of technical and scientific knowledge.



AT THE HOMECOMING BANQUET

Left to right: President Doherty; J. W. Dougherty, Alumni President; Donnell D. Reed, Homecoming Chairman; and Mrs. Doherty.

I turn now to the fundamental revisions that have been made in our curricula. In the Margaret Morrison Carnegie and Fine Arts Colleges there have been no significant changes in the undergraduate curricula. A graduate course has been organized in the Margaret Morrison Carnegie College leading to the M.S. degree in social work. However there have been fundamental revisions in our engineering and scientific curricula, and I wish you to understand clearly the purposes and results of these revisions. What were we trying to accomplish? Two things: first, a broader outlook by the student upon the human, social, and economic aspects of life, and especially of his responsibility as a citizen and as a professional man; and second, improved quality, better understanding of what is studied. In the heavy, regimented, technical program which we had, and which, excepting the heaviness of the load, was reasonably representative of engi-

neering programs throughout the country, there was little opportunity to achieve this broader outlook, or time in which to achieve sound understanding. Director Jones and the faculty of the College of Engineering undertook the study of the curricula with the general plan in mind of reducing the total educational load to about forty-eight units per semester, and the number of subjects pursued currently to five; and of reserving one of the five, throughout four years, for a subject in general studies. By hard work—and it was hard work because it was superposed on an already full faculty schedule—and by purposeful co-operation, the faculty under Director Jones's leadership accomplished the result last year, and the new programs are now in the catalogue.

Such a change necessarily created a few difficult problems, as all changes do, but reasonable solutions, I think, have been worked out. One of the most difficult of these was the shop program. Excepting electrical and civil engineering, the several departments require shop courses, but there was no available time in the limited program; so a plan that is used elsewhere to include work for which there is no time in the regular academic sessions was adopted here, and that is to use six weeks out of one summer vacation for the course. Thus, shop work is given to day students in the summer; and of course evening students, one third of whom take vocational courses, continue as before. The shop instructors are all retained, and their situation even strengthened by the organization of a new Department of Shops under the headship of Professor Leeds. . .

THE PRIVILEGE OF THE IMMIGRANT

The Republic may not give wealth or happiness; she has not promised these. It is the freedom to pursue these, not their realization, which the Declaration of Independence claims. But if she does not make the immigrant happy or prosperous, this she can do and does for everyone—she makes him, under her laws, a citizen, a man.

—Andrew Carnegie

THE WURTS CHRISTMAS DINNER

Following an annual custom that was inaugurated at the Carnegie Institute of Technology in 1927, the Wurts Christmas dinner was held this year on Christmas evening for the students who were unable to go home for the holidays. Mr. and Mrs. Allen E. Risedorph were hosts to fifteen students, —among whom were three from war-torn Shanghai and two from that Pacific paradise, Hawaii—at dinner at the Ruskin and at a party following dinner at the Women's Faculty Club House on the Carnegie Tech campus.

This annual event is made possible through the income derived from a fund given ten years ago by a member of the Carnegie faculty, Alexander J. Wurts. Head of the Department of Electrical Engineering for twenty years, Professor Wurts devoted the time after his retirement from teaching to student welfare work, founding the Student Welfare Fund in 1925 and generously contributing to it in his lifetime—he was, as a matter of fact, its first donor—and by liberal bequest at his death in 1932.

The annual Wurts Christmas Dinner is always preceded by a reading of "The Pilgrims' Grace," which is used as a blessing in the refectory of Chester Cathedral, England:

Give me a good digestion, Lord
And also something to digest;
Give me a healthy body, Lord,
With sense to keep it at its best.

Give me a healthy mind, good Lord,
To keep the pure and good in sight;
Which, seeing sin, is not appalled,
But finds a way to set it right.

Give me a mind that is not bored,
That does not whimper, whine, nor sigh;
Don't let me worry overmuch,
About that fussy thing called "I."

Give me a sense of humor, Lord,
Give me the grace to see a joke;
To get some happiness from life,
And pass it on to other folk.

COLLECTING IN THE UINTA BASIN

By J. Kenneth Doutt

Assistant in Charge of Section of Mammalogy, Carnegie Museum

In all North America the mountain ranges trend, for the most part, in a north and south direction. Their ridges and valleys have been highways for the progress of many animals and plants, but to just what extent they have permitted the progress of the biota, or animal and plant life of the region, it is not easy to say. If millions of years ago we could have constructed a barrier on the North American Continent running east and west, rather than north and south, and if we could have made it of sufficient size to interrupt the normal progress of plants and animals, then, at the present time, we would have an exceedingly interesting experiment by which we could determine the extent to which mountains and valleys assist or prevent the distribution of flora and fauna.

Frequently we find that such an experimental apparatus has already been set up by natural forces, as is the case in the Rocky Mountain area. Here, in northeastern Utah and northwestern Colorado, the Uinta Mountains rise to a height of over thirteen thousand feet, and extend east and west for a distance of more than a hundred miles—a huge mountainous mass rising well above timber line and showing evidence of past glaciation.

Directly to the south of the Uinta Mountains is a great valley, seventy-five by one hundred and fifty miles in extent, lying at an elevation of about five thousand feet, and practically inclosed by mountain ranges that tower to ten thousand feet or more. In this valley, natural forces have progressed in their own way, disturbed only slightly by man and modern civilization for, inclosed as it is by high mountain ranges, the region was invaded only by the most intrepid of early explorers. Even today no railroad has penetrated its boundaries, so that, except for the changes wrought by the grazing of cattle and sheep, and a very limited amount of agriculture, the Basin remains in a primitive condition. The Green River that cuts through the mountains lying to the north and south of the Basin is so turbulent in its passage through the gorges that it, too, is a barrier rather than a highway to progress.

In the sediments of the Basin a history of the past life of the region has been carefully preserved; and buried deep in the solid rocks we find the remains of many animals that inhabited the area millions of years ago. The Carnegie Institute has been making a study of these fossil remains for years, and today claims the best collection in the world of animals formerly inhabiting this area; and it is now endeavoring to make a complete survey of the forms that inhabit the region at the present time. During the past summer members of the staff from the Sections of Mammalogy, Ornithology, Entomology, and Recent Invertebrates contributed toward their parts of the survey. The study of the mammals was undertaken by Mrs. Doutt and myself, assisted during a part of the summer by Olive Bown and Caroline Heppenstall, also members of the department. Dr. and Mrs. A. C. Twomey, accompanied for a time by Ruth Trimble, continued the study of the birds; the Section of

Shimmering with heat under the summer sun, desert bad lands give the impression of a vast waste of uninhabitable country totally devoid of life.

Entomology sent George Wallace as its representative; and the Section of Recent Invertebrates, Mr. and Mrs. Gordon Kutchka. About twenty-five miles west of the Utah-Colorado line lies Vernal, the largest town in the Uinta Basin. It was here that headquarters were established by the Museum party, and from this center trips were made by automobile and pack horse into the remotest sections of the Basin.

After crossing the southern Rocky Mountains west of Denver, the highway drops down into a large valley that is, for the most part, an unbroken desert with bad lands on every side. Along the sky line heat waves dance in the sun, and off in the distance dust devils swirl up the sand in miniature cyclones. The first impression is that of a vast waste of uninhabitable country, totally devoid of life. But closer observation and familiarity with the country reveal that a small amount of water is all that would be required to transform this wilderness into a veritable garden.

It is not hard to understand that the desert must be studied in the early part of the summer—we arrived the latter part of May—for after the blistering sun has withered the spring plants, food becomes scarce for many mammals, and they must either migrate to a more hospitable environment or begin their long winter's sleep. Then, too, camping in the desert is bad enough in the spring, but it becomes even worse in the late summer and fall, for the water holes dry up and even the most protected shade shimmers with seething waves of heat. Although at first this desert seems so inhospitable, in the early summer it is found to be teeming with life. When the ground is still moist from the melted snow and spring rains, it is green with many kinds of flowering plants and grasses; more than a dozen species of mice and other small mammals make their homes here, and at night they can be found by the hundreds, scouring the desert floor for food.

Sometimes, in order to study certain species, it is necessary to camp a long distance from any water supply. How

The day's work really begins at the skinning table.

the animals living in the waterless places manage to exist is not thoroughly understood, but it is known that they can live for years without tasting any more water than that left on the vegetation by the morning dew or a heavy rain. Such a locality teaches the traveler true water economy, too, for the only supply is the twelve to fifteen gallons carried in canteens and desert water bags. One bag is always hung in a shady place where good air circulation will cause rapid evaporation from the bag, and thus keep the water inside cool enough to be palatable. Bathing is eliminated for the time being, and washing is reduced to a minimum, although a very small, folding, canvas wash basin is carried so that a certain degree of cleanliness may be obtained with a maximum conservation of water. The problem of dishwashing is solved by the simple method of allowing one cup to an individual and requiring that all food and beverages be consumed in rotation from the same receptacle. Even the foods are selected with careful attention to the amount of water required in their preparation.

Mountain meadows are a blaze of color during the brief summer months.

It was suprising to learn that camping on the desert in very hot weather induced a craving for both salty and oily foods, with the result that the last bit of oil in a sardine can was sopped up with avidity. Bacon and salt pork are also very palatable, and one often notices that his friends have a tendency to clean up the grease in the skillet after the bacon has been fried. In the mountains, where the climate is much cooler and damper, the oil in the bottom of the can would hold little appeal. The reason for this unusual craving is to be found, I think, in the fact that one perspires so freely that much salt and oil are lost through the skin and to maintain normal equilibrium they must be replaced by the foods eaten.

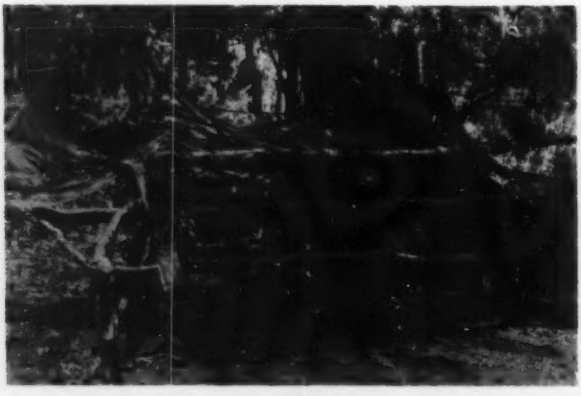
Generally speaking, camp life on the desert is much more pleasant than might be suspected. To be sure it is intensely hot and dry during the midday, and every living creature seeks shelter of some sort. Even that native of the desert, the rattlesnake, is killed by a ten-minute exposure to the direct sun, and mice and small animals perish in an incredibly short time. The refrain of the satiric playwright's song, "Mad dogs and Englishmen stay out in the midday sun," is particularly applicable in this case. Few other animals would tempt fate to such an extent.

The morning and evening hours are delightful, however, for the cool, dry atmosphere is vivifying and invigorating. The songs of canyon and rock wrens reverberate from the rocky hillsides, and the sage thrasher pours out its voluminous song from the greasewood. Jack rabbits and cottontails scurry from the shelter of tangling rabbit brush and in the distance a band of wild horses gallop off in a rise of dust to their favorite water hole. Their tracks lead several miles across the open sandy flats, over hard-packed gravel benches, and down over rocky ledges to a most remarkable spot. Here a little water seeps down over the rocks and

flows across a sandy flat, only to vanish in the sand a hundred yards beyond its source. In that hundred yards, however, the magic power of water is revealed: the bed of the stream is luxuriant with cat-tails and rushes, while the banks are covered with a dense carpet of tall grass, and near the spring a few small cottonwoods struggle for existence. In the grass along the banks meadow mice make their runways and pocket gophers dig their burrows. In the early twilight dozens of bats zoom rhythmically along the tiny stream, each keeping to its own monotonous circuit which leads up or down the stream, then out across the desert, and back again to the stream. The course is so regular that the return of any individual bat can be predicted with considerable accuracy.

Much has been written about night on the desert, but only the experience of being there can ever convey the tranquillity which settles down as the last flaming glow of an exquisite sunset fades into the blue-black shades of night, and the last refrains of a sage thrasher drift from a distant knoll. The stars gradually grow more brilliant and come so close they seem to be a part of the earth itself. The cool, still air is stirred occasionally by a soft breeze that brings with it a fragrance of night-blooming flowers. In that refreshing coolness I crawl into my sleeping bag reluctantly, regretting that such delightful hours must be wasted in sleep. I usually pick out some of the more familiar constellations and note their position in relation to some prominent landmark so, in case my slumbers are disturbed, I can tell approximately what time it is without looking at my watch. Then I plan my work for the following day; but usually, long before I have finished, sleep overcomes my mental efforts and only the singing of the wrens and thrashers brings me back to the reality of another day. Occasionally slumber may be disturbed by the howling of a coyote, or the stir of some marauding desert fox at our grub cache. Sometimes, too, the buzz of a rattlesnake compels everyone to take a flashlight and a stick or shovel, and begin a precipitate hunt for an undesirable visitor that may prove a valuable specimen. Rattlesnakes from the Uinta Basin are of especial interest scientifically, hence every specimen must be preserved, but I confess that its capture and preservation is never relished.

On the desert, the day's work begins as soon as it is light enough to see, for every trap must be visited before the sun is up or every specimen will be cooked as thoroughly as though it had been dropped into a tank of boiling water. Ants, too, begin their work at daybreak, and in a short time they can destroy a specimen beyond recognition. The real day's work, however, begins at the skinning table. First, the specimens are carefully measured and weighed; labels are written recording these figures as well as the



On the open range, tents must be prevented from destruction by roving cattle with stiles and fences made by the collecting party.

At timber line, the firs and spruces become little more than a dense mat strewn among the boulders of the mountainside. Only a few inches high, they grow in a handful of soil.

sex of the mammal, the date, the locality of capture, and the name of the collector. The proper label must be attached to each specimen, then the skin is removed by means of a small incision through the skin on the ventral surface—from this opening the body is removed in one piece. The skin is then dusted with preservative, stuffed with cotton, and pinned out to dry. For an animal the size of a chipmunk this operation requires about twenty minutes. By hurrying as fast as possible, the ordinary day's skinning can be finished by two oclock. Lunch follows, and the hour and a half before traps must be reset for the night is usually devoted to writing notes, photography, hunting, or exploring for new trap locations.

Work in the mountains is so much different from that on the desert that it seems like a different world. Climbing from the desert floor to the top of the mountain, we pass through many different plant zones, some of which are very marked. This change in flora is accompanied by an equally distinct change in the fauna, although the latter is seldom so evident. The low, scrubby growth of rabbit brush, greasewood, and sagebrush that characterizes the lowest parts of the desert is replaced on the face of the mountain by a dense stand of juniper or cedar trees. And as we climb higher the cedars give way to aspens, the aspens to pines, the pines to spruces and firs. The firs finally dwindle in size until they become mere bushes, twisted and gnarled by the wind or flattened against the rocks and bare ground until they are little more than a dense mat a few inches high. Beyond this the landscape is dominated by bare rocks interspersed during the few brief summer months by gorgeously colored alpine plants that have sprung up in the handfuls of soil accumulated behind the large boulders. These changes in plant life are accompanied by similar changes in temperature and rainfall, and simulate to a remarkable degree the changes we might encounter in travelling from Texas to Alaska. Thus, within a relatively short distance, the differences in the fauna that are brought about by changes in climate and vegetation can be studied.

The kangaroo rats, with their long hind legs and bushy tails; the pocket mice, with their fur-lined cheek pouches; and the short-haired prairie dogs of the desert are all replaced on the mountain by other forms that are adapted to a different climate. Jumping mice that belong to an entirely different group and lack the bushy tail of the kangaroo rat inhabit the willowy banks of the moun-

tain streams. Pocket gophers, with their fur-lined cheek pouches, burrow in the soft soil of alpine meadows but they are not related to the pocket mice of the desert. Golden-mantled ground squirrels, with long, soft, silky hair, dig their dens beneath the roots of Douglas fir or aspen trees but they are distinctly different from the prairie dog in form, markings, and habits. Deer, mountain lions, and black bears roam among the forests of the mountain, while wild horses range across the desert plains.

The coyote, however, knows no bounds, but roves from the bottom of the burning desert to the crest of the highest mountains. Anywhere he chooses to lie down is home to him. His musical howl is as familiar at timber line as it is in the bad lands. It is strange how some mammals can range over such diversified regions, while others are peculiarly restricted to very specialized habitats and boundaries. In this connection, it is interesting to note that man and his companion, the dog, are distributed over a wider area of the earth's surface than any other mammals—due largely to the fact that neither is highly specialized but each is readily adapted to an endless variety of conditions. Specialization usually results in a restriction of range or a restriction of opportunities!

"The day is done, and the darkness
Falls from the wings of Night."

Camp life on the mountains, too, is much different from that on the desert. One of the most important differences is the abundance of good water, which is a special luxury after camping on the desert. On the other hand, rain is quite likely to fall every afternoon, tents get damp and moldy, specimens will not dry properly, and even clothing gets wet so frequently that it is impossible to keep it comfortably dry. Skinning and stuffing must be done inside the tent, and even for cooking, it is necessary to put up a shelter of some sort. Heavy waterproof clothing and even woolen underwear are often essential for comfort.

Because of the variety of biological habitats in the Uinta Basin, the many isolated places that may harbor new or rare species can be discovered only by a thorough combing of the entire area. It is essential, however, that each of these hidden places be sought out and investigated with the utmost care, because in them will be found the evidence that will demonstrate the effect of an east-west barrier on the migration of the North American biota.

No other place in North America is known to have as many essential features for an experiment of this kind. For thousands of years it has been in progress and is now ready for an analysis of the results. Another year will be required before the collecting of field data can be completed. Then the material that has been brought into the laboratory must be examined with the utmost care and compared with specimens from adjoining regions so that our conclusions have a basis of sound fact.

THE GARDEN OF GOLD

And still the generous gifts of money for the Carnegie Tech 1946 Endowment Fund come rolling in from day to day, almost with the regularity of the mailman's visits. It is well understood that each dollar so given rates its own value as three dollars.

A trustee sends $2,500 on his pledge for $5,000. A lady whose first name begins with "M" sends $2,500. From someone at Tech—name not given and unknown here—comes a very welcome $5 bill. From Bertha Borland Weaver, a graduate of Tech now living at Mauch Chunk, $1—most welcome. A group of seven Tech graduates, $66—a fine remembrance.

A trustee sends $5,000 with these inspiriting words:

"It is fitting that Pittsburgh should finish this campaign in prompt and enthusiastic fashion. . . I trust the enclosed check may be accepted as a manifestation of my enduring interest in the Technical Schools, with its broad and marvelous opportunities, and the Museum, Library, and Art departments, with which I have had the privilege of being somewhat more intimately associated."

A group of 23 graduates, $284.50. Another group of 17 graduates, $167.

From J. N. Chester, a helpful check for $100, now worth $300.

A group of graduates—number of contributors not stated—$323.50. Another such group, $394.94. Another such group, $754.05. Another, $340. Another, $297—all multiplied by three.

A very good friend transfers his subscription rights to a certain issue of bonds, his gift having a cash value of $926.31, which, multiplied by three, becomes $2,778.93.

From James C. Hobbs, a 1910 engineering graduate of Tech, $1,000—now worth $3,000.

From a lady whose reticence will not permit an identification beyond "G," $2,500—it jumps to $7,500 in value.

We are still feeling the reverberations of those two great subscriptions to this cause—the $200,000 from the Westinghouse, through Chairman A. W. Robertson, to buy technically trained engineers, and $300,000 from the Maurice Falk Foundation, to spread culture into those same technically trained engineers; so it will be seen that one of these gifts supplements the other in the interest of the broadest possible development of the students. Westinghouse and Falk have seen the tendency to merely educate men in the mass for mass production. They want men to have more than that; so Falk takes them up into the top of a high mountain and shows them all the kingdoms of this world that ever were; and when they have absorbed the whole range of life and history, Westinghouse provides the means to add strength to beauty. It's a happy combination. It provides the answer to the slightly dark note in Maxwell Anderson's Founder's Day address, in which he said:

"Looking ahead, myself, I still have no more than a hope that our nation will sometime take as great a place in the cultural history of the world as has been taken by Greece, or Italy, or England."

The splendor of an intellect, technically trained! That is what these students who are to build up the future world are to receive from these truly benevolent gifts.

Technical education without that broad and general knowledge of life and history which we call culture will make us a race of dried sticks.

Caesar mistrusted Cassius because he loved not music, and the end showed that his judgment was correct. Taking the men as equals in their technical instruction, I maintain that the archi-

tect who reads Shakespeare will design a more beautiful building than he who knows only Euclid; that the engineer who has been trained to study the statues of ancient Greece will build a better bridge than the man who cannot describe the Parthenon frieze; that the lawyer whose mind blooms with the flowers of literature will be a truer counsellor than he who creeps in a dusty career of case law; that the banker who knows the relationship of the Old Lady of Threadneedle Street to the great epochs of history will attract business against the mental processes that have twisted themselves around interest and discount; and that the manufacturer and business man in every field will enhance his usefulness in proportion to the domain of his imagination.

A letter from Mr. Falk shows that it is more blessed to give than to receive. "The gift to the Institute of Technology," he writes, "has given me much joy and happiness, and especially the fact that I am able to see the favorable work of the Foundation and to watch the progress during my lifetime."

And all this chimes in with the plans for the spreading breadth of the school which were in the mind of Dr. Doherty when he accepted the presidency of Carnegie Tech. He has always loved those five sisters who make up Tech's College of Fine Arts—music, painting, sculpture, architecture, and the drama. And now these gifts of money will enable him to plant the seeds of culture in the minds of the young men who are to become the masters of science!

All these recent cash gifts to the Tech Endowment Fund, not previously acknowledged, amount to $17,159.30 and on the three-for-one basis they sum up to $51,477.90.

And then—there is the Carnegie Institute! Our trustees have looked with a good deal of anxiety on this campaign for the Tech Endowment Fund lest it should result in pushing the Institute so far into the background that the normal impulse to give would shut out the Institute from help that is always needed to carry on its great work. But not so! A man whose heart overflows with goodness toward all men came in the other day and gave $40,000—out of hand—to the Carnegie Institute—just like that! That was all there was to it. He wanted to give the money and he gave it. Then, when he learned that there was an accumulated bank interest on his gift amounting to $1,500, he gave that, together with his $40,000.

Another constant friend has sent his check to the Institute for $1,500 for field work in paleontology during 1938.

Mrs. Lawrence C. Woods has contributed $100 toward the research expedition to Labrador and the Belcher Islands, and the same friend of the $40,000 gift has added $1,000 to this Labrador fund.

Restating the cash contributions since the inauguration of the CARNEGIE MAGAZINE April, 1927, to December, 1937, we find the total amounts as follows: Carnegie Institute, $1,172,511.64; Carnegie Institute of Technology, $1,457,013.16; and $21,822.50 given to the Carnegie Library for specific purposes. All subscriptions that await payment at the convenience of the givers are reported here only as subscriptions and do not go into the cash acknowledgments until they are paid. To show, however, the progress of Carnegie Tech toward its goal of $4,000,000, we are listing here the total amounts in pledges and cash that have been given to date for the 1946 Endowment Fund since the inauguration of the present campaign in March, 1937, or $394,000 in pledges and $287,522.92 in cash, or $682,052.92 altogether.

Adding the gifts acknowledged this month—$17,159.30 for Carnegie Tech and $44,000 for the Carnegie Institute—to the total sums given above, the cash gifts now stand as follows: Carnegie Institute, $1,216,511.64; Carnegie Institute of Technology, $1,474,172.46; and $21,822.50 for the Carnegie Library of Pittsburgh, making a grand total of money gifts since the inauguration of the Magazine, almost eleven years ago, of $2,712,506.60.

IRON FROM HEAVEN

By Robert F. Mehl

Director of the Metals Research Laboratory and Head of the Department of Metallurgy, Carnegie Institute of Technology

It is related that when an aide once told President Thomas Jefferson that two Yale professors, Kingsley and the famous chemist Silliman, had described a fall of stones from the sky at Weston in Connecticut, the President remarked, "It is easier to believe that two Yankee professors will lie than to believe that stones will fall from heaven!" It is one of those frequent perversities of history that the celestial origin of meteorites was recognized very early and then forgotten, probably because such a conception had so many connotations of the supernatural as to prejudice it even in the educated lay mind, as for example, in Jefferson's. The French Academy of Science, in its great wisdom, once thought it necessary to issue the ukase that "there is no such thing as celestial metal," feeling, evidently, that such a miracle should have no place in science, for in those days science was jealously guarded from the unusual. It was only after the beginning of the nineteenth century that Chladni, in Germany, and Biot, in France, firmly established in the modern scientific mind that small celestial bodies do fall from the heavens and may be recovered.

The history of meteorites is interesting reading: it is one of the minor streams in the development of civilization which has had moments of interest and occasionally of significance. Would it, offhand, be thought that meteorites once were important in religion and in later days have been influential in the progress of the great art and science of metallurgy?

It is now known that meteorites are of three kinds: iron—really iron-nickel—iron mixed with stone, and stone. Our attention is chiefly drawn to the study of iron meteorites, for these have been of most use to man (Figure 1). For reasons that are not wholly identified, man learned to smelt iron ore and make iron and steel much later than he discovered the like art for copper and bronze. Through the bronze age, man's only iron—his very highly valued iron—was that which he hammered from iron meteorites. With characteristic human curiosity he experimented with the lump of heavy material he had found by chance and discovered it to be malleable, so that by infinite patience—and

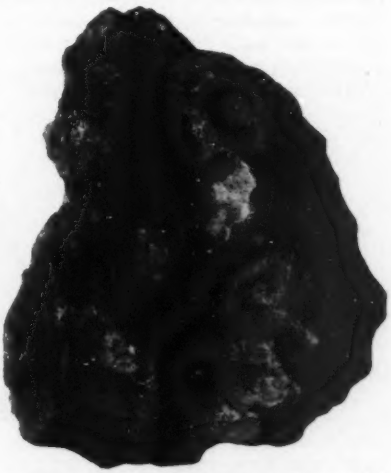


Figure 1. The original size of the Cañon Diablo iron-nickel meteorite shown in this photograph is 10 x 11 inches. It illustrates the usual dull black crust and the irregular surface and characteristic depressions, or "thumb marks."

aboriginal man was not pressed for time!—he was able by hammering with a stone to raise an edge, then a fin, and finally a usable cutting edge. This sharpened metal he fitted into a handle to make any one of a wide variety of tools and weapons. When Joseph Sabine visited Greenland in 1818 with Sir John Ross he found the Eskimos using such tools; and so did Admiral Peary nearly a century later—his Eskimos had hacked their knives from a large meteorite known as the "Old Woman"!

But others, moved more by their fears of the supernatural than by their sense of the natural, saw meteorites as objects deserving worship, as in the relatively recent year of 1772 a meteor was described as "a holy thing fallen from heaven," and enshrined them in places of worship. Even today they may be found in eastern temples. Others less hopeful imagined them to be the return of an evil spirit to earth, favorably that of a local petty tyrant.

Early man well knew the celestial origin of these objects, no matter what use he made of them. Chinese writings record, and thus recognize, a meteoric fall in 644 B.C. But recognition really came much earlier than this among other peoples, for primitive Babylonian writings denote iron by two characteristics signifying "heaven" and "fire," and the Egyptian word in a pyramid text in the sixth dynasty was "bia-en-pet," meaning "marvel from heaven," and a Hittite text of the sixteenth century B.C. speaks of "black iron of heaven from the sky." It is said that the Greeks, in an athletic celebration in honor of the funeral of Patroclus, rewarded the victor with a meteorite which evidently had been used in the shot-put. Both Pliny and Plutarch record meteoric falls; it is said that the Romans at one time celebrated meteoric falls by declaring a nine-day festival.

Throughout the world iron meteorites have been adapted to tools of some forty-four recognized forms. Attila carried a sword, known as "the heavenly sword," made from a meteorite, as did Timur, much later, and certain Caliphs. Through the Middle Ages, the subject of meteorites became obscure until, in 1649, a certain learned person named Tollius thought it necessary to reaffirm the celestial origin of these bodies, declaring meteorites to be "generated in the sky by a fulgurous exhalation conglobed in a cloud by the circumposed humour," a statement that was frightening but hardly enlightening. The Spanish invaders in Central and South America were mystified by the meteoric iron tools of the Aztecs and the Incas, and Amerigo Vespucci found Indians in the La Plata region in South America using arrowheads made of meteoric iron. Even today such implements may be found among the few remaining primitive men.

Modern knowledge of meteorites is quite complete. There is, of course, no

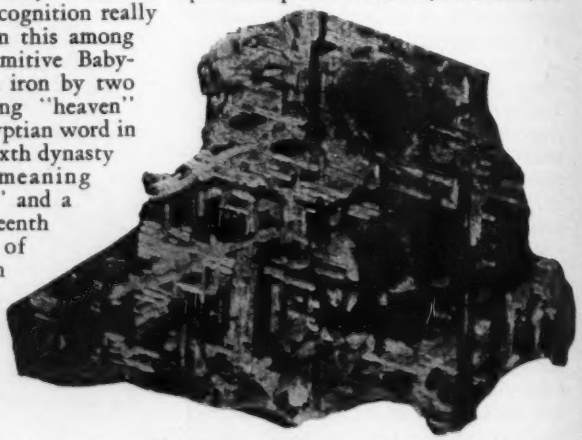


FIGURE 2. The Widmanstätten figure is shown here in a polished and etched Cañon Diablo iron-nickel meteorite, the original size of which is 8 x 6 inches. The striations are intersections of plates with the surface. At a high temperature this meteorite had been a single crystal, and the plates had formed on cooling and lodged parallel to crystal lattice planes.

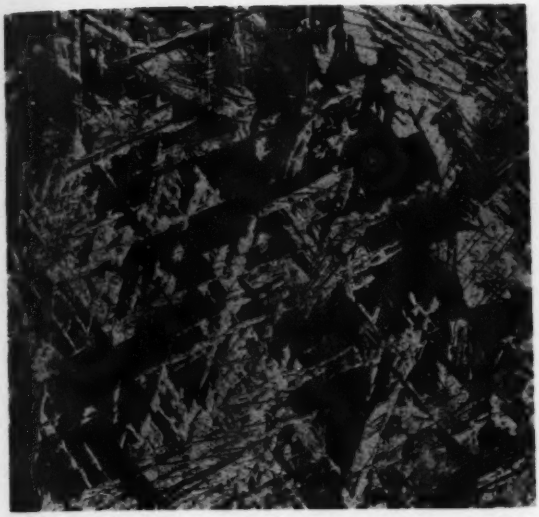


FIGURE 3. This photograph, showing one large grain on the left and a smaller grain on the right, with grain boundary between, has a magnification of 20 diameters and illustrates the Widmanstätten figure in an ordinary steel containing 0.17% carbon. The striations here, as in Figure 2, are intersections of plates with the surface.

doubt about their celestial origin. The meteorite approaches the earth from somewhere in interstellar space with a velocity of from thirty to forty miles per second and loses much of this velocity on passing through the atmosphere. The velocity of a large meteorite is naturally affected less than that of a small, and when sufficiently large it may strike the earth with enormous velocity, liberating some 450,000 calories per gram of its mass, in comparison with the 1,000 calories liberated by the explosion of one gram of dynamite. Large meteorites bury themselves deeply, if indeed they are not vaporized by the energy generated on impact. The transit through the atmosphere is short, and though the luminosity comes chiefly from the high temperature generated by friction with the air, the heat is only superficial and confined to a very thin crust and so rapidly dissipated that the meteorite, even when found immediately, is comfortable to the touch. Shooting stars, which are minute meteorites, disintegrate quickly from the heat generated by passage through the air and disappear long before they reach the earth.

The three types of meteorites are known scientifically as: siderites (iron), siderolites (ironstone), and aerolites (stone). The rocky material in the ironstone and the stone meteorites is all volcanic—no sedimentary rock occurs, and no vegetable or animal life has been found, though hydrocarbon gases have been identified; evidently the recent report of the discovery of microörganisms in meteorites was premature. Meteorites may be classified according to variations in their chemical constitution in such a way as to lead to the conclusion that they originated in a single

FIGURE 4. This Martensitic structure in a quenched simple carbon steel occurs in steels heat-treated to produce maximum hardness. The magnification is 700 diameters but several grains are shown, and the parallelism of the striations is thus not so evident.

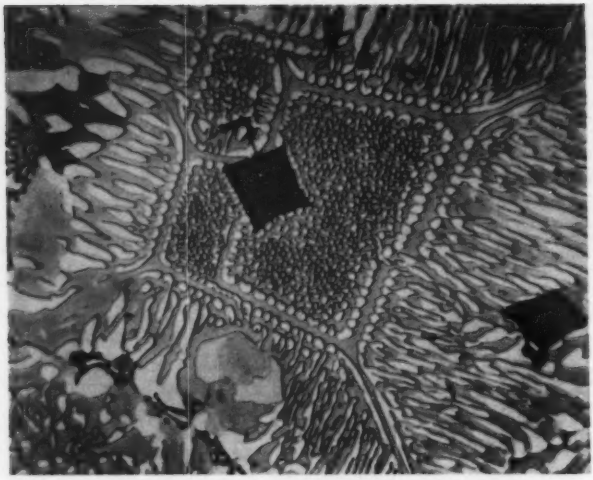


FIGURE 5. Photomicrograph of a complex alloy used for tools known as "stellite." Magnification 1500 diameters. The microstructures of alloys show a very wide variety of forms often of great beauty.

celestial body that had suffered a catastrophe, leaving these lone wanderers in celestial space. Meteorites have not been found in rocks older than the Pliocene, and it is thus concluded that this catastrophe might conceivably have occurred within the geologic history of the earth.

There is an average of four falls of meteorites each year. These vary from a multitude of small stone meteorites to a single iron meteorite weighing tons. The famous Cañon Diablo in Arizona, a circular crater of nearly a mile in diameter, is thought to have been caused by the impact of a meteorite now lying deeply buried. Some $200,000 has been spent in prospecting to determine its location, for a meteorite weighing 10,000,000 tons composed of an alloy of iron and nickel would be very valuable indeed, but thus far prospecting efforts have been fruitless, though iron meteorites scattered about the crater give evidence that the hopes of the prospectors are not unfounded. The iron meteorites illustrating this article are from the Cañon Diablo. The supposed meteoric fall in Siberia in 1908 may, when better evidence is available, prove to be the largest in history, for the country in an area of fifty miles was devastated. Perhaps Wells's story of the havoc wrought by a heavenly body approaching the earth too closely may yet be realized in an even more extreme form by the impact of a huge meteorite on some important center of population—only the favors of chance guard against this.

What is the composition of meteorites? Largely alloys of iron and nickel, they contain on the average of 8 per cent nickel, though the percentage is occasionally much more or much less than this, and it is interesting to note that the core of the earth, all the earth except the outer crust of several hundred miles thickness, is probably composed of such an alloy.

It was an iron meteorite of this average composition that in 1808 came into the hands of Alois de Widmanstätten, director of the Imperial Porcelain Works in Vienna. This meteorite, the Agram meteorite, De Widmanstätten cut, polished, and etched, and—doubtless to his great surprise and pleasure—developed the amazing and beautiful geometric pattern which has since born his name, the Widmanstätten figure shown in Figure 2. Although he could not have known it, his experiment, one of mere curiosity, led later to the development of the whole science of the internal structure of alloys, a science so diversified in this era of metals as to touch almost every aspect of life.

His interest in the subject was evi-

dently a passing one, for he thought so little of his discovery that he did not trouble to record it in print, but the news of it was circulated and attracted the attention of scientists. The great Faraday showed that iron and nickel may be melted together in meteoric proportions, and thus in a sense first synthesized the iron meteorite. The mineralogist and the crystallographer were immediately impressed with the precision and beauty of the geometrical pattern of the Widmanstätten figure and shortly studied it to determine its internal crystal structure much as they had long studied the external structure of ordinary crystals and minerals. In 1863 Rose succeeded in cleaving a meteorite along the planes of the lamellae (Figure 2) and produced a nearly perfect octahedron, a regular eight-sided solid. But why the meteorite promised such an octahedral structure, how the structure had formed, remained a mystery until the extremely important science of metallurgy was developed late in the nineteenth century.

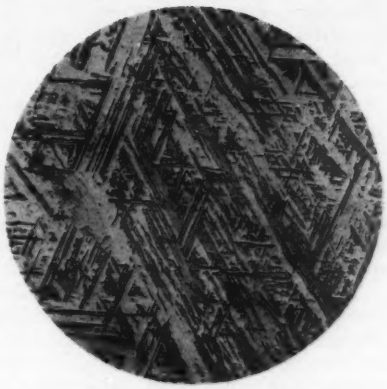


FIGURE 7. Photomicrograph of an artificial iron-nickel alloy with 27% nickel, very slowly cooled. Magnification 30 diameters. This figure is gross enough to be recognized as a Widmanstätten figure by the unaided eye.

This mineralogical curiosity, the Widmanstätten figure, seemingly of only impractical importance, came as a stimulus to the birth of the science of metallurgy through the effort, not of a metallurgist—for in those days there were no metallurgists in the modern meaning of the word—but of a petrographer, Sorby, in England. Sorby, recognizing that meteorites are really alloys, wondered whether ordinary alloys like steel might also be found to possess this structure when polished and etched. He knew that polishing and etching would not develop such a structure in steel visible to the unaided eye, but he thought that possibly the petrographer's careful technique of polishing and etching might develop a structure that would be revealed at high magnification under a petrographer's microscope. And he was right, for his sample of steel under the microscope was found to possess a

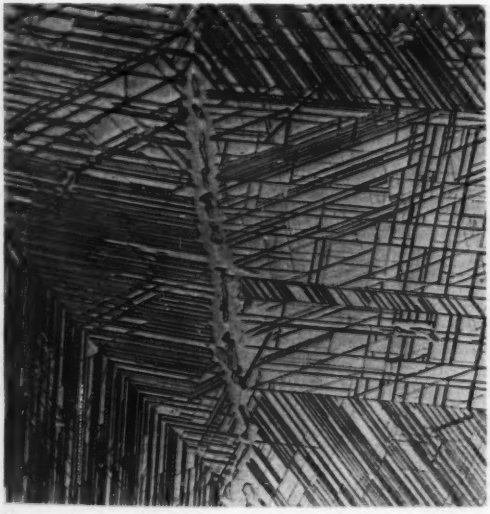


FIGURE 6. Widmanstätten figures in structures similar to this may be found in a wide variety of alloys. This one is in an alloy of cobalt and tungsten with 35% tungsten, magnified 500 diameters.

structure quite similar to the Widmanstätten figure in meteorites (Figure 3). Then Osmond, in France, and Arnold and McWilliam, in England, identified the structure in cast steel and in steel ingots; Belaiew, in Russia, produced it deliberately by heat-treating steel; Benedicts, in Sweden, found it on a microscopic scale in artificial iron-nickel alloys; and Sauveur, in America, showed its occurrence and importance in quenched steels (Figure 4).

This verification and amplification of Sorby's findings had a far-reaching effect, for it taught those engineers interested in metals and alloys that they might learn much from a microscopic study of the internal structure of metals and alloys. The microscope has thus become the most important piece of apparatus in the metallurgical laboratory. With Sorby's work the science of metallography began, and was shortly to be of extreme importance in the heat-treatment of alloys and in the development of new ones, for it was found that the internal or microstructure of alloys (Figure 5) bears a very close relationship to their properties, and that treatments that change the microstructure—forging, rolling, annealing, and quenching—also change the properties of commercial alloys.

The Widmanstätten structure is now known to have formed in the solid state, that is, by a change or transformation after freezing from one crystal form of the solid alloy to another during the cooling of the solid alloy. With the development of the science of the crystal structure of solids, it became recognized that atoms in solids are arranged in space in a three-dimensional lattice network, and that each crystal grain is composed of such a lattice. The plates of the product of transformation in meteorites form the Widmanstätten pattern seen on the surface of polish (Figure 2). These plates lie parallel to certain of the planes of atoms in the lattice network of the crystal from which they formed. On analysis it is found that the Widmanstätten figure will furnish data on the movement of individual atoms during the transformation. Since all alloys have space lattices, and since many alloys undergo similar transformations, Widmanstätten figures may be found in a wide variety of alloys (Figure 6). This abstruse problem—important in the science of all alloys which may be heat-treated—has engaged the attention of members of the staff of the Metals Research Laboratory at the Carnegie Institute of Technology, who have obtained much new basic information. During the course of this work, it was found that gross Widmanstätten figures visible to the unaided eye may be developed in artificial iron-nickel alloys which have been very slowly cooled (Figure 7), and it may thus be properly inferred that the far grosser figure in meteorites is proof that during their latter history they had cooled very slowly indeed.

It is fairly easy to see, then, that iron meteorites throughout the history of man have been of importance to the workers of metals, even to the modern ultra-scientific metallurgist. Shall meteorites continue to be of use in understanding the fundamental problems of metallurgy? Shall metallurgists continue to turn to them for help? If past history is proof, the wary metallurgist will not neglect these celestial visitors, this iron made in heaven.

FREE LECTURES

[Illustrated]

Museum

2:15 P.M. IN LECTURE HALL

JANUARY

23—"Diving in Coral Gardens," by Roy Waldo Miner, curator of marine life at the American Museum of Natural History and lecturer on marine life and personal explorations.

30—"The Big Game Parade," by William L. Finley, famous ornithologist and conservationist; producer of Finley nature films.

FEBRUARY

6—"Roaming in Hawaii," by Harry A. Franck, experienced travel author and lecturer.

13—"Dream Windows of Dawn," by Wallace Havelock Robb, general nature lecturer.

"THE PLAY'S THE THING"

A Review of George Farquhar's "The Beaux Stratagem"

By Harold Geoghegan

Professor of the History of Art, Carnegie Institute of Technology

George Farquhar was the last of that brilliant quartet of masters of the comedy of manners who are generally known as the Restoration dramatists, although the Restoration was pretty ancient history, and the reign of "good" Queen Anne well on its way when "The Beaux Stratagem" was written. Besides being the last, Farquhar is also perhaps the least brilliant of the four. At least, his comedies have little of that hard and steely brilliance that is characteristic of Congreve. His biographers—he has had several, German as well as English—are eager to claim for him a superior morality and even qualities of heart that are certainly not to be found in his contemporaries. We are told by Dr. Strauss that he "felt as keenly as Steele or Cibber the impossible and revolting state of court life and city morality." If there is any evidence of this feeling in the "Beaux Stratagem," I have not been able to find it. The two "heroes," Aimwell and Archer, seem very like most of the other disreputable heroes of Restoration comedy, obsessed with one idea—namely, tricking an heiress into marriage by any scheme, no matter how shabby, in order to get her money. Nor is there any evidence of the author's disapproval of his heroes' tactics.

Farquhar has, however, other claims to our consideration than that of his superior morality. Congreve's "The Way of the World" is pretty generally spoken of as the wittiest comedy in the English language, but it is at the same time a masterpiece of clumsy construction. One is dazzled by its brilliance, but two months after it has been read or seen, one cannot easily recall what it is all about. Unlike his famous contemporaries whose chief and avowed concern was in being "gentlemen"—Vanbrugh combined the profession of architect with that of gentleman—Farquhar had always had to work for his living. An impecunious Irishman—for, of course, like all the best English dramatists from Congreve to O'Casey, he was Irish—he had tried to earn a living as an actor. According to all accounts he was a pretty poor one. He left the stage and took to writing after accidentally wounding a fellow actor in a stage duel by neglecting to exchange his sword for a foil. But his knowledge of the routine of the theater was invaluable to him as a dramatic writer just as it was invaluable to Shakespeare earlier and to Ibsen later. His plays, compared with those of his contemporaries, are neatly constructed, and he managed his rather involved plots with skill. Knowing how to keep his wit—of which he had plenty—in check, his plot and characterization and everything else are never allowed to disappear in a display of dazzling verbal fireworks as Congreve's frequently do. It is probably this sense of the theater that has kept Farquhar's "The Beaux Stratagem" alive as a stage play. "The Way of the World," "Love for Love," and "The Country Wife" have been read more and are more enthusiastically admired, being, without doubt, superior as literary achievements, but

the "Beaux Stratagem" has had many more revivals and been seen much more steadily on the stage. Even the names of two of the minor characters have become part of the English language. We still speak of a landlord as Boniface and of a philanthropic lady as Lady Bountiful.

Wycherley, Vanbrugh, and Congreve had all finished their literary careers long before they finished their lives; the later years of any one of them were entirely bare of literary effort. Farquhar wrote this light-hearted, buoyant comedy, as his friend and leading man, Robert Wilks, tells us, "most of it in bed, and before he had finished the second act he perceived the approach of death." He died at less than thirty, before the run of the "Beaux Stratagem" was over, and even the longest runs were short in those days.

Since Restoration comedy is admittedly artificial, most present-day directors, including Henry Boettcher who made his bow as a director at the Little Theater with this production, seem to feel that instead of trying to tone down that artificiality, it should be further emphasized, and the play in question is given a highly stylized and antinaturalistic performance. Entrances and exits are made to music, the lines are spoken to an obbligato of bows and curtseys and reverences, of hands laid on hearts, and the sweeping off of hats, and the flutter of fans. The movements and gestures of the players are planned and calculated as carefully as they would be were the production a ballet. This method is meant to—and perhaps does—point up the hard brilliance of the lines. It also forestalls any criticisms that might be made concerning the probability or the morality of the actions of the characters by warning us that these people whom we are watching are not men and women like ourselves but the glittering inhabitants of the dramatist's imagination and, as such, not governed by any mere earthly rules of conduct. Mr. Boettcher made a gallant attempt to capture the courtly air of artificial comedy, but the actors at his disposal had hardly the tradition or the training necessary to carry out his ideas. The airs and graces seemed a little forced, and one could not help thinking that the actors felt self-conscious and regarded their attitudinizing as a mite ridiculous. There is nothing surprising in this. I doubt if any group of English or American actors have the necessary training for just this type of comedy.

SCENE FROM FARQUHAR'S "THE BEAUX STRATAGEM"—STUDENT PLAYERS

The "grand manner" in comedy is not native to this country or to England. In France every actor at the Comédie Française or the Odéon, or even at the Conservatoire, can do it, but they have acquired it by long practice. The actors know the mechanics of the business, and the "grand manner" of the court of Louis XIV—or what passes for it upon the stage—has been part of their uninterrupted theatrical tradition since the days of Molière. In England, however, whatever tradition may have existed in the seventeenth and eighteenth centuries is lost. It takes more than a month's rehearsal, some lessons in eurythmics and all the good will in the world to acquire a courtly manner, though the attempt to acquire it must have been excellent training for the young actors.

One disadvantage of the artificial method is the difficulty of bringing the rustic characters into the scheme. They cannot possibly be made courtly, so, to make them artificial, they have to be made grotesque. This is unfair, at least in the case of Farquhar, whose rustics are his most original characters. Scrub, for instance, is delightfully comic when one reads the play. The part must have been attractive to actors too, as we know that Garrick, who almost always played Archer, often took the part of Scrub instead. In the present performance the only characterization in the part that I could discover was confined to a loud voice and a bright red face. The main distinguishing mark of the low comedy characters was their complexion: Scrub and Foigard and Goody were all a vivid scarlet.

The show part of Archer was played with a considerable air and the actor seemed less hampered by his courtly gestures than his fellow players. Mrs. Sullen spoke her witty lines with point, and there was an attractive and gentle Dorinda. The part of Cherry, the landlord's pert daughter, was played with an infectious gaiety that made one regret her disappearance from the action so early in the play; she was, however, given the epilogue, which she spoke with spirit. The highwayman, Gibbet, was grimly amusing, and I hate to confess that I got a good laugh from that preposterous libel on the Irish race, Foigard. Really Farquhar should have known better than to give us such a stage Irishman! Of course he himself came from Londonderry, which may account for it. The equally improbable Frenchman, Count Bellair, had his droll moments.

Mr. Weninger provided a pretty and highly artificial setting for the "Beaux Stratagem" with scenery that slid down on rollers in full view of the audience while scarlet-clad footmen made the necessary changes in properties. Miss Schrader's costumes were gay and full of color though they seemed less voluminous than I had imagined the women's costumes in the days of Queen Anne.

MUSEUM'S LABRADOR EXPEDITION

J. Kenneth Doutt, Assistant in Charge of Section of Mammalogy, and Arthur C. Twomey, Assistant and Field Collector, Section of Ornithology, left Pittsburgh the first of January to study and collect specimens in their respective fields in the territory around the Great Whale River. The land of Ungava, approximately one thousand miles north from Pittsburgh, on the barren shores of Hudson Bay, is the goal of the two scientists in their eight-months' research expedition. Their trip, which was made possible by friends interested in furthering the work of the Carnegie Institute, will include a long, hazardous journey of five hundred miles by dog sled over the ice to Belcher Islands, where much of their research will be done. It is expected that their collections will add greatly to our knowledge of the fauna and flora of that desolate region, for specimens are to be brought home within as extensive a range as is consistent with climatic limitations.

INTERNATIONAL WATER COLOR EXHIBITION

For a number of years the Carnegie Institute has been indebted to the Art Institute of Chicago for the privilege of showing a selection of the water colors from their annual international water-color exhibition. The task of organizing and assembling water colors from many nations each year at the Art Institute is a great and praiseworthy one. The fact that Chicago permits other museums to enjoy the fruits of its efforts is, to say the least, a most generous gesture.

The 1937 exhibition at the Art Institute of Chicago contained 535 pictures. For the circuit exhibition, a selection of 161 water colors was made. From this number, 72 were chosen for the show that now hangs in the balcony of the Hall of Sculpture.

As to nationalities represented, types of technique, and subject, the show at the Carnegie Institute is a fair cross section of the original exhibition at the Art Institute of Chicago.

Being a stimulating and varied display, it offers an excellent opportunity to study the present development of the water-color medium. It is interesting at once to observe how abstract painters are utilizing water color and to note how effectively it serves their purpose. For instance, there is Paul Klee's "Composition with Birds," very decorative in design and beautiful in color. Wassily Kandinsky is another abstract artist who finds water color a very satisfactory medium for his composition. The Italian artist, Gino Severini, reveals the delicacy of tones that can be achieved with water color, as in "Still Life with Duck." Marc Chagall, because of the imaginative quality of his work, as in "The Prince Comes," and Raoul Dufy, because of his rapid and note-making style, are very much in their element in water color.

If one studies the pictures in the exhibition by American artists in contrast with European artists, he will find that most European artists use water color in somewhat the same manner as they use oils. They do not let the colors flow with the abandon that the Americans do, and they do not utilize their paper as a background. They have a very decided tendency to cover the whole of the paper, as Emil Nolde does in "Women," Otto Dix in "Mother and Child," and Zygmunt Menkes in "Boy with Red Béret." The Americans, on the other hand, like Eliot O'Hara in "Gulls, Biddeford Pool," Gertrude Schweitzer in "Morning," James FitzGerald in "Road Gang," Earle Horter in

STILL LIFE WITH DUCK
By Gino Severini (Italian)

SOUTH WOODSTOCK VILLAGE
By Howard Giles (American)

"Nude," and Howard Giles in "South Woodstock Village," let the paper play an important part in the scheme of things, and seem more inclined, and very properly so, to let the medium work out its destiny. They make a point of differentiating a water color from other mediums. Perhaps this may be accounted for by the fact that most European painters are also water-colorists, while in America many artists devote themselves exclusively to water color. The development of the medium in this country has been greater than in any other nation, and it still offers a fertile field for experimentation.

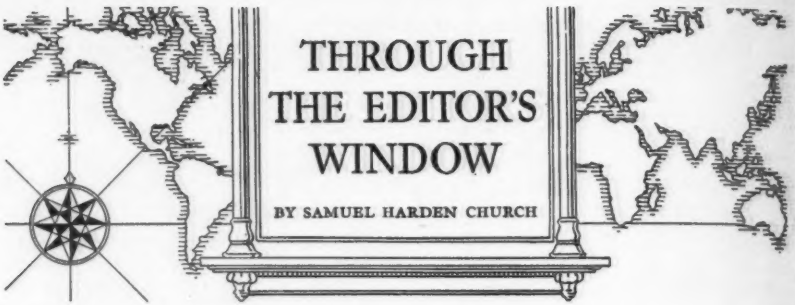
The American scene continues to form the theme for water-colorists in the United States. This may be observed in Richard Lahey's "Piermont," Walt Louderback's "Dull Evening," Prentiss Taylor's "South Market Street," Phil Dike's "The Country Store," Maurice Freed's "Hallelujah!" and Loran Wilford's "Florida Darktown."

Water color intrigues the artists, and particularly their viewers, who are interested in the freedom of the medium, its informality, its brilliance, and the sense of playfulness and spontaneity there is about it.

The exhibition will be shown until January 30. J. O'C. Jr.

ASSOCIATED ARTISTS EXHIBITION

The twenty-eighth annual exhibition of the Associated Artists of Pittsburgh will be held in the Carnegie Institute galleries from February 11 to March 13. The usual classifications will be included in the show—oils, water colors, drawings, etchings, lithographs, woodcuts, sculpture, and crafts. Chosen by the vote of the active members of the Associated Artists, this year's jury comprises the following nationally known artists: Waldo Peirce, Doris Lee, and George Elmer Browne, who will meet on January 29.



ART JURIES AND THE PUBLIC

A THOUGHTFUL reader of the CARNEGIE MAGAZINE writes a letter addressed to the Board of Trustees of the Carnegie Institute in which he intimates that the trustees are responsible for a policy in the annual International Exhibition of Paintings which has failed to educate the people of Pittsburgh to a proper knowledge of art; and his principal contention is that there was a great deal of popular opposition to the selection by the International jury of award of Braque's painting, "The Yellow Cloth," for the First Prize.

The article in the CARNEGIE MAGAZINE for December by John O'Connor Jr. concerning the vote for the Popular Prize by visitors to the Exhibition furnishes a sound refutation of our friend's criticism. It is a fact that for the fourth consecutive year the Popular Prize, by a majority of the votes cast, has been awarded to Frederick J. Waugh for a painting of the sea. But Mr. O'Connor shows that in this popular contest, through a large number of votes, the people of Pittsburgh have exercised a fine and intelligent discrimination in choosing some other of the very best pictures for this honor. After the Waugh painting, the next canvas chosen by them was "The Country Doctor," by Lauren Ford; next came "A Game of Patience," by Meredith Frampton; and "Ophelia," by Gerald Brockhurst, gained a wide following. Mr. O'Connor proceeds to run through the tally sheet of the popular contest, clearly showing that the people recorded their preferences by voting for some fifty paintings, all having high merit and attraction; and every one of the canvases shown at this time had been originally accepted in the show as the work of a master of the art of painting.

The incident shows that the exhibitions that have been held at the Carnegie Institute during the past forty years have not failed to do in Pittsburgh what they would have done in any other American city—they have disseminated in the minds of our community a knowledge and understanding of painting which give our people the quality of judgment of the very highest order; and out of the fifty paintings which drew the most of their ballots, there were some—at least a score—any one of which had it been chosen by the International jury for the First Prize would have been acclaimed by the art world as a happy choice.

Where there is so much excellence as was shown in this last International Exhibition, so brilliant, happy, and representative in all its parts, it would be difficult indeed to prove that any one canvas is the best in the show. Painters understand this point, and if it should happen, for example, that, in the years to come, a canvas which might be classed as an intellectual abstraction should receive the award of the First Prize, that honor would in all probability be based upon its technical merits rather than on the quality of inherent

beauty and emotional feeling which, as in a portrait or a landscape, would fittingly govern the imaginations of many educated men and women.

Mr. Henry C. Frick said, a long time ago, that Americans who go abroad crowd into the art galleries of Europe before they see anything else; and, he continued, the collections of paintings in America are growing so rapidly in numbers and quality that it is no longer necessary to go to Europe to see the best art. That very wise observation by a former Pittsburgher applies to the Carnegie Institute in its implications; and a dissent made at any time by our people from any jury award does not imply that it springs from a lack of education; on the contrary, that dissent is sure to base itself upon a very clear understanding of the whole subject.

A FRENCH PRESIDENT'S CALL TO AMERICA

THE CARNEGIE INSTITUTE dedicated its new building in 1907, with some three hundred distinguished men from Europe and America attending its three-day sessions, a large section of Pittsburgh people crowding Music Hall, and Andrew Carnegie, the great creator of it all, beaming over the occasion in benevolent delight.

There were many questions of etiquette to be considered. The foreign guests were quartered at the Schenley Hotel, adjacent to the building, and it might seem an easy matter to get them across the street. But it wasn't. There were Germans appointed by the Emperor, and French, English, Italians, and Americans. Who should have precedence in the march from the hotel to the Institute? Nobody knew. Well, Elihu Root was Secretary of State, and he was written to for guidance; and in time came his personal letter—precedence follows the alphabet in French, that being the language of diplomacy. And so Allemagne came first, Angleterre next, then France, and Italie. Hence, the big German soldier, Lieutenant-General von Loewenfeld, led the parade.

The speaking program presented some of the same difficulties, all of which were adjusted without a world war, until France was reached; and then it appeared that in the French section there were two visitors, both of whom stood in the higher realm of statesmanship—both moved by ambition to attain the stratosphere of political success—Paul Doumer and the Baron d'Estournelles de Constant. Who should speak first?

There was a famous French author among the visitors, Paul Bourget, and when he was privately appealed to, he spoke thus: "D'Estournelles de Constant is a member of the French Senate, and Paul Doumer is president of that body; but D'Estournelles has reached his top, while Paul Doumer will one day be President of France. Choose for yourself!"

Paul Doumer was introduced for the first speech, and he delivered an address in the French language which charmed his audience and drew the resounding marks of approbation. I asked him afterwards to write it out for our printed book, but he never found time to do this. I remember, however, that it was a speech of great force and beauty, in which he pleaded for the recognition of intellectual ideals against the domination of force the world over, and reminded us pleasantly that the Americans are children of Europe; and that America, being compounded of all the races of the earth, must use her power and her influence to preserve international peace; for, he said, if America ever went to war, her forces would be called upon to shoot the brothers of her soldiers, and that would be a fratricidal war. The welfare of Europe, he said, was deposited in the nourishing heart of America.

We did not know that we were entertaining a future President of the French Republic; but twenty-four years later, in May, 1931, Paul Doumer was

elected to that high office—surely he was now in the stratosphere of politics! And then, at the height of power, his thoughts turned again toward Pittsburgh; and he was in correspondence concerning another very probable visit to the Carnegie Institute when he was stricken down by the hand of an assassin.

He had long before that time written me a pathetic but exalted letter about the loss of his four strong sons, all killed in the first year of the Great War; and the French Republic, in recognition of his heartbreaking sacrifice, named a street in Paris after those boys, La Rue des Quatres Fils de Monsieur Doumer—a stately memorial, The Street of the Four Sons of Mr. Doumer!

RADIO PROGRAMS

CARNEGIE MUSEUM AND FINE ARTS DEPARTMENT

1937-1938

This series, given every Saturday at 5:45 P.M. over KDKA by the staff members of the Carnegie Institute, is known under the title "From the Home of the Muses" and is intended to acquaint the general public with our aims, functions, and activities.

JANUARY

15—"Newfoundland Saga," by Stanley T. Brooks, Curator of Recent Invertebrates, Carnegie Museum.

22—"Newfoundland—Where Codfish Reign Supreme," by Dr. Brooks.

29—"The Newfoundland Labrador," by Dr. Brooks.

FEBRUARY

5—"Hibernation Time," by O. E. Jennings, Curator of Botany and Director of Public Education, Carnegie Museum.

12—"The Rail-Splitting Lincoln," by Jane A. White, Assistant Curator, Section of Public Education, Carnegie Museum.

PROGRAMS FOR CHILDREN

Free Motion Pictures for Children are shown at 2:15 P.M. each Saturday in the Carnegie Lecture Hall, from November to March, inclusive. The films are especially selected—nature, industry, travel, full-length features, and comedies.

At 3:00 P.M. each Saturday there is a Story Hour in the Boys and Girls Room of the Carnegie Library, to which all children are invited.

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